CHAPTER 1

TECHNICAL ADMINISTRATION

LEARNING OBJECTIVE: Identify personnel, their functions, and requited paper work to administer a Battalion Equipment Maintenance Program; recognize maintenance support requirements for a Civil Engineering Support Equipment (CESE) maintenance program.

The higher you ascend on the enlisted ladder, the more valuable you are to the Navy. Advancement brings both increased rewards and responsibilities. You must be able to perform various administrative duties within the Construction Mechanic rating, such as opening and closing of equipment repair orders, maintaining history jackets, updating preventive maintenance record cards, and ordering direct turnover (DTO) or repair parts. The type of activity to which you are attached will determine the way you should carry out your administrative responsibilities.

In this chapter, technical administration as it relates to the Naval Construction Force is discussed. It is primarily concerned with maintenance administration and maintenance support.

MAINTENANCE ADMINISTRATION

LEARNING OBJECTIVE: Recognize the principles and techniques of administering the Civil Engineering Support Equipment (CESE) maintenance program.

Administrative guidelines concerning Civil Engineering Support Equipment (CESE) maintenance are contained in NAVFAC P-300, Management of Civil Engineering Support Equipment and COMSECONDNCB/COMTHIRDNCBINST 11200.1.

MAINTENANCE ORGANIZATION

The organization of an equipment maintenance section varies depending upon several factors: number and type of assigned equipment, number and experience of personnel, working hours, number of shifts, environmental conditions, and the mission of the activity. The organization discussed in this chapter is based upon the operation of a typical Naval Mobile

Construction Battalion (NMCB). The functions discussed are also applicable to small activities where one person may be required to perform several functions.

Maintenance Supervisor

The maintenance supervisor is the senior mechanic assigned to an activity, usually a senior chief. This supervisor is responsible for the maintenance program for all assigned Civil Engineer Support Equipment (CESE) and all personnel involved. The maintenance supervisor directly supervises the inspectors, the shop supervisors, the preventive maintenance and cost control clerks, the technical librarian, and the toolroom and parts expediters.

Some of the maintenance supervisors responsibilities are to enforce all established maintenance policies, approve all repair actions before accomplishment, approve requisitions for procurement of Not-In-Stock (NIS) and Not-Carried (NC) materials, maintain shop work load files, make all decisions concerning deadline CESE, control transfer and disposal of CESE, supervise the preventive maintenance (PM) program, and control shop tools and kits. The maintenance supervisor also initiates action when, during maintenance procedures, equipment abuse or misuse is suspected

Shop Supervisor

The typical NMCB maintenance organization is divided into three shops: the heavy shop, the light shop, and the support shop. Each shop is supervised by a shop supervisor. This position is held by a chief or senior first class petty officer, who is responsible for the quality of maintenance and repairs performed by personnel within the shop. The shop supervisor is also responsible for

ensuring that the equipment repair order (ERO) is complete with length of time, initials, materials list, and any required requisitions.

Crew Leader

The crew leader is a second or senior third class petty officer. This person is responsible for ensuring the job gets done. When assigned a job, the crew leader must determine what member of the crew is to do what work, what tools and repair parts are required, identify special safety precautions to be observed, and what priority the job has. A crew may be assigned more than one job at a time. Once the job is assigned, it is the crew leader's "baby." The crew leader is also responsible for ensuring that crew time is reported, that all materials used on the job are recorded, and that any unscheduled repairs are reported to the shop supervisor.

Inspector

Inspectors examine equipment for needed repairs and services. They work directly for and are responsible to the maintenance supervisor. Inspectors should be first class or senior second class petty officers. They must be knowledgeable and proficient in their rating, and they should be able to describe each repair action on the ERO clearly.

Before the initial inspection is performed, an inspector should review the equipment history jacket. The inspector is responsible for reviewing previous EROs for follow-up adjustments from previous repairs and maintenance schedule and lubrication charts to initiate hourly/mileage repairs or adjustments. He also reviews the DTO file for parts recieved to perform deferred repairs. Inspectors may perform minor work that pertains to inspection procedures only. Inspectors should inform the maintenance supervisor of suspected equipment abuse or misuse and recurring component failures immediately.

Each piece of equipment is inspected after repairs are completed to ensure that the work was done correctly. Thorough final inspection increases reliability and reduces the mechanic's work load.

Cost Control Supervisor

The cost control supervisor is usually a first class petty officer who is responsible for administrative control of the equipment maintenance program. The cost control supervisor works directly for and responsible to the maintenance supervisor. The cost control supervisor directly supervises the PM clerk, the DTO clerk, the tool custodian, and the technical librarian

Some of the cost control supervisor's responsibilities are to draft all maintenance related correspondence such as monthly CESE reports, receipt messages and letters, disposal letters, 1348s and material-handling equipment (MHE) reports. The cost control supervisor also, completes EROs, forwards downloads to 3rd NCB equipment office, tracks daily and weekly equipment availability, maintains the deadline equipment file, and NORS/ANORS status board.

Preventive Maintenance Clerk

The preventive maintenance clerk controls the PM program directed by the maintenance supervisor. The PM clerk places all CESE into PM groups, prepares the PM schedule, and maintains the PM record cards with the preventive maintenance history of each vehicle. The PM clerk is responsible for controlling EROs. maintaining the ERO log, maintaining and updating equipment history jackets, and updating equipment status boards in the maintenance office. The PM clerk also summarizes the total cost of repairs and of labor expended and makes appropriate entries on the ERO.

Direct Turnover Clerk

The direct turnover (DTO) clerk maintains the maintenance shop's repair parts status and accountability records and is a liaison between the supply office and the shop. All requisitions for Not-in-Stock (NIS) and Not-Carried (NC) material must pass through the DTO clerk who maintains the DTO log and repair parts summary sheets. The DTO clerk also maintains the deadline file and deadline status board.

Technical Librarian

Technical librarians are responsible for the prepacked library that contains operational, maintenance, and parts manuals. They establish and enforce check-out procedures for the manuals and initiate parts requisitions (NAVSUP 1250s and DD Form 1348s). The task of researching and preparing the requisitions is handled by the technical librarian, so the floor mechanics can perform maintenance functions.

MAINTENANCE CATEGORIES

The goal of maintenance is to maintain equipment in a safe and serviceable condition at all times at a reasonable cost and to detect minor deficiencies before they develop into costly repairs. The CESE maintenance system of the NCF is predicated on three categories or levels of maintenance as prescribed in NAVFAC P-300 and CONSECONDNCB/COMTHIRDNCBINST 11200.1. These three levels are as follows: ORGANIZATIONAL, INTERMEDIATE, and DEPOT. The category of repairs performed are determined by the nature of the repair; level of repair parts, support, tools, equipment and time available; personnel capabilities; and the tactical situation. An activity's range of repair parts support is keyed to the authorized level of maintenance.

Organizational Maintenance

Organizational maintenance is the responsibility of and performed by the equipment operator; scheduled preventive maintenance services are performed by trained personnel. Operational maintenance consists of proper equipment operation, safety and serviceability inspections, lubrication, and minor adjustments and services. Organizational maintenance is divided into operator maintenance and preventive maintenance as specified below.

- 1. Operator Maintenance. Each operator is required to perform work needed. to maintain their vehicle in a clean, safe, and serviceable condition. This includes the daily inspections before, during, and after operation. It also includes periodic lubrication and adjustments recommended by the equipment manufacturer. Operator maintenance is performed to ensure early detection of deficiencies.
- 2. Preventive Maintenance. Preventive maintenance (PM) is scheduled for the purpose of maximizing equipment availability and minimizing repair costs. PM consists of safety and mechanical inspections, fluid and filter changes, lubrication, and services and adjustments beyond an operator's responsibility. Operators assist with the work unless directed otherwise.

Intermediate Maintenance

Intermediate maintenance is the responsibility of and performed by a designated maintenance shop. The extent of intermediate maintenance encompasses the removal, replacement, repair, alteration, calibration, modification, and the rebuilding and overhauling of individual components, assemblies, and subassemblies. Although the rebuilding and overhauling of major assemblies are included, only essential repairs must be accomplished to ensure safe and serviceable equipment. Intermediate maintenance requires a higher degree of skill than organizational maintenance. There is a larger assortment of repair parts, more precision tools, and other types of test equipment involved.

Equipment that requires extensive repairs or numerous assembly rebuilds must NOT be repaired without prior approval of higher authority. Field units must request authority from COMSECONDNCB Equipment Det, Gulfport, Mississippi, or COMTHIRDNCB Equipment Det, Port Hueneme, California, before purchasing component parts in excess of \$2,500.

Depot Maintenance

Depot maintenance is performed on equipment requiring major overhaul or comprehensive restoration to return an item of equipment to a "like-new" condition. Depot level maintenance uses production line and assembly line methods whenever practical.

At this point, you should only be concerned with organizational and intermediate maintenance. Most depot maintenance is performed by overhaul facilities located at Port Hueneme, California, and Gulfport, Mississippi.

MAINTENANCE SCHEDULING

The only type of maintenance that can be performed on a regular basis is preventive maintenance. A dynamic PM program reduces equipment downtime and prevents unexpected equipment failure. PM scheduling provides a balanced shop work load, thus reducing the size of the work force required. Once the PM schedule of an activity has been established, only the maintenance supervisor can authorize deviations. The PM scheduling system used in the NCF is the only system discussed here. The standard interval between PMs is 40 working days.

PM Groups

PM groups are scheduling units into which all of the equipment of an activity is distributed evenly. Each item of CESE must be assigned to at least one PM group. The equipment should be distributed evenly throughout the 40 PM groups, so only a minimum number of similar pieces of equipment are out of service at any one time. The normal grouping works like this: If there are ten dump trucks within the inventory, one should be assigned to every fourth PM group; if there are four water distributors, assign one to every tenth PM

SAMPLE PM SCHEDULE

ACTIVITY	
YEAR	

PM				Mo	ONTH .	AND I	DAY SC	CHEDU	LE			
SCHED.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
GROUP												
1	21		19		14		11		6		1	
2	22		20		15		12		9		4	
3	23		21		16		15		10		5	
4	24		22		17		16		11		6	
5	25		25		20		17		12		7	
6	28		26		21		18		13		8	
7	29		27		22		19		16		12	
8	30		28		23		22		17		13	
9	31		29		24		23		18		14	
10		1		1	27		24		19		15	
11		4		2	28		25		20		18	
12		5		3	29		26		23		20	
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22		19		17		13		9		7		5
23		20		18		14		12		8		6
24		21		19		17		13		9		9
25		25		22		18		14		10		10
26		26		23		19		15		11		11
27		27		24		20		16		14		12
28	2	28		25		21		19		15		13
29	3		1	26		24		20		16		16
30	4		4	29		25		21		17		17
31	7		5	30		26		23		18		18
32	8		6		1	27		26		221		19
33	9		7		2	28		2 7		2 2		20
34	10		8		3		1	2 8		2 3		21
35	11		11		6		2	2 9		24		24
36	14		12		7		3	30		2 5		26
37	15		13		8		5			28		27
38	16		14		9		8		3	29		30
39	17		15		10 13		9 10		4 5	3 0 3 1		3 1
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Figure 1-1.—Sample preventive maintenance inspection schedule.

group and so on. The equipment should be grouped so a unit that works together is scheduled for the same PM group; for example, semitrailers with truck tractors, scrapers with tractors, and so on. Activities should assign each piece of equipment to one PM group initially. After the system is established and operating, the maintenance supervisor should review its effectiveness and REDUCE the intervals for high mileage/hour items of equipment, if necessary. The time interval is NEVER INCREASED beyond 40 working days.

Preventive Maintenance

A preventive maintenance inspection schedule, such as the one shown in figure 1-1, should be established annually. A new schedule is required each vear, as the schedules are based on the workdays in each calendar year. The workdays on the schedule must correspond to the actual workdays of the unit; for example, if you work a 5-day week, enter 5 days; omit holidays. The PM groups are numbered vertically down the first column. Figure 1-1 shows the standard 40 PM group concept arranged for a 5-day workweek. The dates of the workdays of January are then listed consecutively in the January column. After the last workday in January is entered, continue with workdays in the February column and so forth. After completion, the schedule indicates the workdays that each PM group is due for inspection. For example, figure 1-1 shows PM group 5 is due on January 8, March 6, May 1, June 27, August 23, October 23, and December 19.

MAINTENANCE INSPECTIONS

The object of a maintenance inspection is to detect minor deficiencies before they develop into costly major repairs. This is done daily by the operator and regularly scheduled preventive maintenance.

Operator

The first sign of vehicle trouble is usually detected by the operator during one of the three daily inspections: before, during, and after operation.

The BEFORE OPERATION (prestart) inspection consists of an operator inspecting the items listed on the Operator's Inspection Guide and Trouble Report, NAVFAC 9-11240/13 (fig. 1-2). If a defect is discovered, the equipment **SHOULD NOT BE OPERATED.** The defect must be reported to the dispatcher who, in turn, will report it to the maintenance section.

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insp			efore and after operation rvicing by maintenance
	1. DAMAGE (Exte	erior, Interior, Miss	ing Components)
/	2. LEAKS (O	il, Gas, Wat	e r)
	3. TIRES (Check	Inflation, abnorm	nal wear)
	4. FUEL, OIL, V	WATER SUPPLY	(Antifreeze in season)
	5. BATTERY (C	heck water level	, cables, etc.)
	6. HORN		
	LIGHTS/REFLEC	TORS/MIRRORS/TURN	N SIGNALS
		(Oil, Air, Tempera	iture, etc.)
	9. WINDSHIELD		
		SHIELD/VEHICLE	EINTERIOR
	11. CARGO, MOUNT	ED EQUIPMENT	
	12. STEERING		
		ICES (Seatbelts,	flares, etc.)
	14. DRIVE BELTS		
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Figure 1-2.—Operator's Inspection Guide and Trouble Report, NAVFAC 9-11240/13.

The DURING OPERATION inspection consists of an operator using the sense of smell, sight, and touch to detect improper operation. When a defect is discovered during operation, the equipment should be secured and the problem reported to either the supervisor or the dispatcher.

The AFTER OPERATION (post operation) inspection consists of an operator looking over the equipment while performing established shutdown procedures and reporting defects to the dispatcher.

Preventive Maintenance

Preventive maintenance inspections consist primarily of safety and serviceability inspections and are performed by using the *Automotive and Construction Preventive Maintenance Guides* listed in the COMSECONDNCB/COMTHIRDNCBINST

11200.1. The type of PM inspection is determined and controlled as follows:

- Type "A" (01)—At intervals of 40 working days. It is performed on each scheduled PM due date until a vehicle qualifies for a type "B" PM.
- Type "B" (02)—PMs are based on the equipment manufacturer's recommendations/ specifications for milage/hours usage required to initiate a "B" (02) for fluid and filter change, major adjustments or scheduled maintenance as required. For example, a 5-ton dump truck could undergo three or four "A" (01) PMs before accumulating the required milage/hours for a "B" (02) PM.
- Type "C" (03)—Annual safety inspection (ASI), as per manufacturer's recommendations/ specifications.

Deadline Vehicle

Deadline inspections are particularly critical to ensure equipment does not deteriorate. Deadline inspections are performed at each regularly scheduled PM. An 01 level PM is accomplished on all deadline CESE. The equipment is inspected to ensure the following:

- All openings are covered and weathertight.
- All machined surfaces are preserved.
- All disassembled components are tagged, covered, and stored.
- No cannibalization has taken place since the last inspection (controlled parts interchange is not approved as a normal procedure; however, the maintenance supervisor only may authorize it to meet operational commitments).
- Parts removed from deadline equipment should be replaced with non-serviceable items, and the maintenance supervisor must ensure that replacement parts are ordered "Not Operationally Ready for Supply (NORS)." This should be done using a priority applicable to mission accomplishment.
- All replacement parts, costs, and labor hours related to the interchange should be charged against the item of equipment on which the part failed. When the replacement parts are received

and installed, only the labor involved should be charged to the piece of equipment from which the interchange part was taken.

Whenever possible, deadline inspections should include cycling (checking components for proper operation). For example, if a truck is deadlined for an axle, you can still start the engine and ensure that it runs properly. When cycling is accomplished, make sure that all required preservation is accomplished. Equipment is considered deadlined when it does not perform as designed or when it is in need of parts that are not on hand.

Accident

Accident safety inspections "12" ERO are initiated on all CESE involved in a mishap, regardless of damage and is commonly used for estimates. This inspection ensures that a vehicle is in safe condition before being released for operation Any repairs and parts required must be charged against this Equipment Repair Order (ERO). No preventive maintenance should be performed. When preventive maintenance is required, the type "12" ERO should be closed and another ERO opened for the maintenance required.

PM RECORD CARDS

A Vehicle/Construction Equipment Preventive Maintenance Record Card, NAVFAC 11240/6 (fig. 1-3) must be accurately maintained for each item of assigned equipment and attachments to assist the PM clerk in preparing an ERO. PM record cards are maintained by PM groups in a tickler file, and the following information is to be recorded from the completed preventive maintenance EROs:

- Type of PM service performed
- Date performed
- Cumulative mileage/hours
- Oil change or filter change (indicated by O/C or F/C)
- Fuel filter change (indicated by FF/C)
- Hydraulic filter change (indicated by HF/C)

CESE with assigned attachments are identified on the PM record card by a colored tab to ensure attachments are given PM inspections with the assigned equipment, and each attachment and attachment code are listed on the back of the PM record card. The PM

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Figure 1-3.—Vehicle/Construction Equipment PM Record Card, NAVFAC Form 11240/6.

record cards are returned to the equipment history jacket whenever CESE is transferred or the card is full.

REPAIR ORDERS

The Navy uses repair orders to specify, authorize, and control repairs on all USN-numbered equipment. The repair orders also serve as a reporting document from which information can be extracted to provide an activity with a complete picture of how their maintenance program is doing. They also provide complete historical cost and utilization information for each piece of CESE; therefore, the information contained on the repair orders must be neat, complete, and accurate. This cannot be overemphasized.

Shop Repair

The Shop Repair Order (SRO) and its Continuation Sheet (figs. 1-4 and 1-5) are used mainly in Public Works activities. The SRO is a three-part snap out set. It is required each time labor exceeds 0.3 of an hour, or material is expended on a piece of USN-numbered equipment. Instructions for using an SRO are contained in the NAVFAC P-300 manual.

Equipment Repair

The Equipment Repair Order (ERO), NAVFAC Form 11200/41 (figs. 1-6 and 1-7). wasdesigned for use by all Naval Construction Force units to record types of repairs and the total time a piece of equipment is out of service. Accumulation of such data provides reliable information to plan the budget, to determine

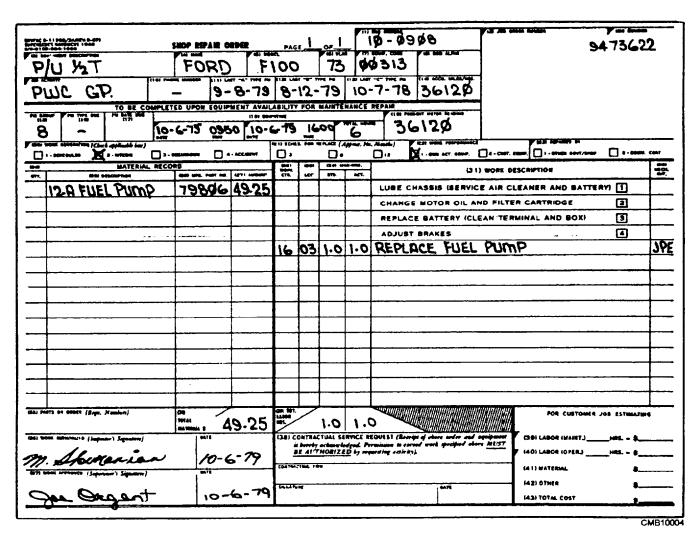


Figure 1-4.—Shop Repair Order (SRO).

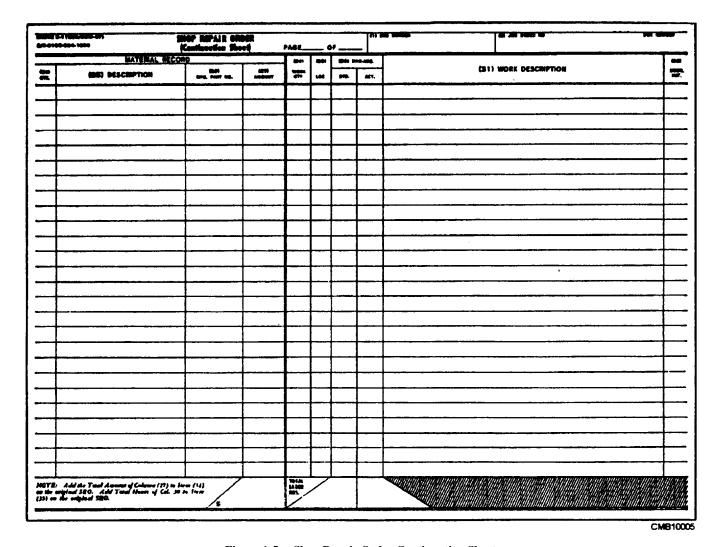


Figure 1-5.—Shop Repair Order Continuation Sheet.

economical life expectancies, and to predict future equipment and training requirements. The Equipment Repair Order Continuation Sheet, NAVFAC Form 11200/41A (fig. 1-8), is used with the ERO when the number of repair items exceeds the spaces provided on the ERO. An Equipment Repair Order Work Sheet, NAVFAC 11200/41B (fig. 1-9), should be used to record repair parts use and be filed with the completed ERO in the equipment history jacket. The ERO and the ERO Continuation Sheet are five part, multicolored (white, blue, green, yellow, and pink) snap sets. The green copy is the mechanic's working copy.

The ERO is the sole authority to perform work on CESE in the following categories, regardless of the

location of the equipment, in the field or in the shop:

- Scheduled maintenance (PM)
- Field repairs
- Accident repair
- Interim repairs that exceed 1.0 man-hour or require repair parts
- Modernization or alteration of equipment
- Deadline cycling or preservation of equipment

Control of each ERO is required to prevent having two or three EROs open for the same piece of

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Figure 1-6.—Equipment Repair Order (ERO), NAVFAC 11200/41.

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Figure 1-8.—Equipment Repair Order (ERO) Continuation Sheet, NAVFAC 11200/41A.

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Figure 1-9.—Equipment Repair Order (ERO) Work Sheet, NAVFAC 11200/41B.

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equipment. Figure 1-10 shows a sample Equipment Repair Order Log. The types of information generally called for are the following:

- ERO number (assigned eight-digit number). (The first four digits are two alpha characters and two numeric, such as AA00. The last four digits are numeric and constitute a Job Sequence Number (JSN) which is assigned locally. This JSN runs continuously from 0001 through 9999. At such time as 9999 is used, a new series starts 0001.)
- Equipment code (six-digit code, as shown on the PM record card).
- USN number (seven digit equipment registration number).
- Type of repair (type of maintenance performed, such as 01, 02, or 03).
- Date in (date ERO forwarded to inspector).
- Date out (date equipment is returned to dispatch).
- PM group.
- Hard card number (number issued by dispatch from the hard card log).
- Remarks (date deadlined, and so on).

The EROs and the ERO log are maintained by the PM clerk. Complete instructions on the use of EROs are located in the *Management of Civil Engineering Support Equipment*, P-300, and the COM-SECONDNCB/COMTHIRDNCBINST 11200.1.

EQUIPMENT HISTORY JACKETS

An equipment history jacket is maintained for each USN-numbered piece of CESE. The history jacket contains the pertinent descriptive data and maintenance history of the vehicle. The descriptive data includes the appropriate DoD Property Record, DD Form 1342 (fig. 1-11), and Equipment Attachment Registration Record, NAVFAC 6-11200/45 (fig. 1-12), if applicable. The maintenance history jacket also includes the completed PM record cards and blue copies of completed EROs.

When a vehicle is transferred, the PM record card is removed from the PM group file and returned to the history jacket. The jacket is then either hand carried or forwarded by mail to the receiving custodian. When the vehicle is to be transferred to a Defense Reutilization Marketing Office (DRMO), the history jacket must accompany it.

LABOR REPORTING

In battalions and at shore-based activites, your duties involve posting of working hours on time cards for military personnel; therefore, you should know the type of information required in labor reporting. You should note that the labor reporting system used primarily in Naval Mobile Construction Battalions (NMCBs) and the system used at a shore-based activity are similar.

A labor accounting system is mandatory for you to record and measure the number of man-hours that a unit spends on various functions. In this system, labor usage data is collected daily in sufficient detail and in a way that enables the Operations Department to compile the data readily and prepare reports for higher authority.

Although labor accounting systems vary slightly from one command to another, the system described here can be tailored to record labor at any command.

A unit must account for all the labor used to carry out its assignment. Labor costs are figured and actual man-hours are compared with previous estimates based on jobs of a similar nature. When completed, this information is used by unit managers and higher commands to develop planning standards.

The labor accounting system covered in this section is based upon the procedure and guidelines established by both Naval Construction Brigades (NCBs) for NMCB use.

Time cards (fig. 1-13) are the basis for your situation report (SITREP) input. Therefore, it is imperative that time cards be filled out correctly and accurately. COMSECONDNCB/COMTHRIDNCB-INST5312.1 is the instruction that governs timekeeping procedures. Man-hours should be recorded under a specific code in one of three labor categories. The categories are listed below.

1. DIRECT LABOR is man-days expended directly on assigned construction activity, either in the field or in the shop, and labor that contributes directly to the completion of an end product. Tasked projects are assigned a project number. Labor expended on a specific project should be reported under that project number. Record direct labor by construction activity number. Included under direct labor (besides construction) arc such tasks as the following:

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Figure 1-11.—DoD Property Record, DD Form 1342.

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Figure 1-12.—Equipment Attachment Registration Record, NAVFAC 6-11200/45.

TIME CARD Crew Size: Transfers This Date: Crewleader: Signature: Date: Project Number: Project Title: Readiness and Training Direct Labor by Construction Activity Number Indirect Total Total Total Crew Member's Rate/Name Totals

Figure 1-13.—Time card.

- Project and site surveying.
- Shop work that contributes directly to the completion of a project. For example, prefabrication of components.
- Camp maintenance when accomplished as part of the battalion direct labor tasking.
- Mineral product operations for either a tasked project or as a specific tasked project.
- Construction equipment operation when assigned to a tasked project.
- 2. INDIRECT LABOR is man-days expended to support construction operations. but does not produce an end product itself; therefore, this time is not repotted/recorded under a project number; it is recorded under an indirect labor code. The codes are as follows:

XO1—Equipment, Repair and Records

XO2—Project and Camp Maintenance

XO3—Project Management

XO4—Location Moving

XO5—Project Travel

XO6—Material Support

XO7—Tools

XO8—Adminstration and Personnel

XO9—Last Time

X10—Other

3. READINESS and TRAINING are comprised of functions related to preparation for and execution of military exercises, disaster preparedness, mobility, and technical training. Training includes attendance at service schools, factory and industrial training courses, fleet-type training, special Seabee training courses, safety training, military training, and any other organized training conducted within a battalion. Report/record these man-hours under a specific name.

Your report should be submitted on a typical daily time card form, similar to the one shown in figure 1-13. The form provides a breakdown by man-hours of the activities in the various labor codes for each crew member for each day on any given project. This form is reviewed at the company level by the staff and platoon commander, then it is initialed by the company commander before it is forwarded to the Operations Department. It is tabulated by the management division

of the Operations Department with the daily labor distribution reports received from each company and department in the unit. This report is a means by which the operations office can analyze the distribution of manpower resources each day. It also serves as feeder information for preparation of the monthly OPS/SITREP reports and other source reports required of the unit. This information must be accurate and timely. Each level in the company organization should review the report to analyze its own internal construction management and performance.

- Q1. What person is responsible for the maintenance program in a Naval Mobile Construction Battalion?
- *Q2.* What is the standard interval between PMs?
- Q3. What NAVFAC manual provides instructions for using a Shop Repair Order?
- Q4. Interim repairs that exceed what number of manhours require an ERO?
- Q5. Equipment maintenance is what type of labor?

MAINTENANCE SUPPORT

LEARNING OBJECTIVE: Describe key items of maintenance support required for the Civil Engineering Support Equipment (CESE) maintenance program.

The tools, consumables, and spare parts needed to support the equipment allowance of the unit are portions of maintenance support. The Supply Department is responsible for providing these items.

In a battalion, the Supply Dpartment is under the control of the supply officer, who is assisted by a chief Storekeeper. The supply section (S-4) is responsible for general supply, ship's service, material control, and delivery. The material control section is responsible for ordering, receiving, and controlling tools, materials, and repair parts. As you can see, S-4 has a big job. Keep this in mind when you become impatient with the Storekeepers.

REPAIR PARTS SUPPORT

Mechanics expect repair parts to be available when needed—and rightly so. It is the job of supply to provide the parts you need; however, supply cannot satisfactorily perform its support mission without the help of maintenance personnel. Mechanics must understand how the repair parts supply system works and make sure that supply knows what you need and when you need it. Telling supply you need a "whatchamacallit" for a jeep does not help, but provide them the proper nomenclature and a part number and they can obtain it for you. Normally at least one mechanic is assigned to the repair parts storeroom for technical information and assistance. The DTO clerk provides liaison with supply for checking requisition status. The maintenance supervisor assists supply in determining additional repair parts requirements. The NCF initial outfitting of repair parts is designed to support new or like-new CESE for the first 1,200 construction hours. It is based on two 10-hour shifts, 7 days per week, for the first 60 days of deployment.

Levels

There are four different levels of repair parts support (O, G, H, or D) that can be assigned to a unit, depending upon its mission, location, maintenance capabilities, and so on.

- 1. "O" LEVEL support is designed for Seabee teams, Construction Battalion Units (CBUs), Reserve battalions, and outlying NMCBs that perform only organizational level maintenance. It is the lowest level of support.
- 2. "G" LEVEL support is designed for NMCB/PHIBCB major detachments that perform intermediate level maintenance.
- 3. "H" LEVEL support is designed for the main body of an NMCB/PHIBCB that performs intermediate level maintenance.
- 4. "D" LEVEL support is designed for major shops (CBCs) that perform depot level maintenance.

Each level of support includes all lower level items; for example, "H" level includes all "O" and "G" level items.

Categories of Repair Parts

Repair parts can be divided into two categories: parts peculiar and parts common.

REPAIR PARTS PECULIAR is composed of parts that only fit a specific make and model piece of equipment. When a unit requests support for an allowance of equipment, the Civil Engineering Support Office (CESO) identifies the applicable Allowance Parts List (APL) for each make and model of equipment in the allowance. Using the APLs that are identified by CESO, the Ships Parts Control Center (SPCC) consolidates these APLs into a tailored repair parts list.

This list is referred to as a Consolidated Seabee Allowance List (COSAL) or a NAVSUP Modifier Code 98 (MOD 98 kit). CESO provides copies of the COSAL to both the requesting unit and the Construction Battalion Center (CBC) that supports it. The CBC is then responsible for drawing the required items from stock or initiating procurement action and shipping the parts to the unit requesting the allowance.

REPAIR PARTS COMMON is composed of common and consumable supplies for use on numerous types of equipment. These items have been separated into common assemblies (MOD 97 kit) to reduce redundancy and overstocking of these items. Presently the MOD 97 kit consists of 29 individual kits, such as hydraulic hose and fittings, nuts and bolts, electrical terminals and wire, O rings, and so on. The MOD 97 kit is designed to supplement a MOD 98 kit for the first 60 days of a contingency operation. Note that these MOD 97 kits are not designed to support a unit for a full deployment. MOD 96 provided the same support for smaller units such as details and air detachments.

COSAL Arrangement

Each COSAL is arranged and divided into three separate parts.

PART I consists of a cross-reference list to determine what APL applies to what USN number. PART I is composed of three separate cross-reference lists, each containing the same information, but sorted and printed in a different sequence.

- Section A is printed in USN-number sequence.
- Section B is in Equipment Code (EC) sequence.
- Section C is in APL-number sequence.

PART II consists of APLs arranged by identification number. The APL identification number is listed in both the upper- and lower-right corner of each APL page and consists of nine digits, such as 950004121. The PART II MAJOR SEQUENCE is based on the last four digits (950004121) of the APL identification number (low to high). This is commonly referred to as the APL number. Exceptions are vehicles, such as truck-mounted water distributors (one APL for the truck, another APL for the distributor) and mobile cranes (one APL for the carrier, another for the crane.) The PART II MINOR SEQUENCE is based on the preceding three digits, such as 950064121 for the fuel system group items. A listing of groups covered in each APL is displayed on the first page of each APL, such as

950004121. The first two digits of the APL number (950004121) are consistent in the Naval Construction Force COSALs because they identify the APL as NCF versus shipboard Within each APL, the parts are arranged by component identification groups (CIDs). Figure 1-14 shows the CID groups presently being

used by the NCF. The first CID group is always the allowance application group. The second CID group is the technical manual group that lists all the applicable operating, maintenance, and parts manuals. The remainder of the AFXs contain actual parts listings.

CID	Group Name	CID	Group Name
000	Allowance Application Group (Gp)	043	Grader Gp
OTM	Technical Manual Gp	044	Dozer Gp
001	Engine Gp	045	Ditcher or Trencher Gp
002	Truck Engine Gp	046	Road Roller Gp
003	Starting Engine Gp	047	Earth Auger Truck Mounted Gp
004	Auxiliary Engine Ĝp	048	Conveying Equipment Gp
005	Clutch Gp	049	Crushing Equipment Gp
006	Fuel System Gp	050	Screening/Washing Equip. Gp
007	Exhaust System Gp	051	Fire Fighting Equipment Gp
008	Cooling System Gp	052	Refrigeration/Acng Gp
009	Electrical System Gp	053	MMK Gp
010	Transmission Gp	054	Separator Gp
011	Auxiliary Transmission Gp	055	Running Gear Gp
012	Power Transfer Gp	056	Manifold Gp
013	Propeller Shaft Gp	057	Tank Gp
014	Front Axle Gp	058	Trailer Gp
015	Rear Axle Gp	059	Flood Light Gp
016	Brakes Gp	060	Filter or Strainer Gp
017	Wheels Gp	061	Chlorine Control Gp
018	Tracks Gp	062	Evaporating Gp
019	Steering Gp	063	Water Fording Gp
020	Frame Gp	064	Machinery Gp
021	Springs/Shock Absorbers Gp	065	Laundry Equipment Gp
022	Body, Cab, Hood, Hull Gp	066	Winterization Gp
023	Hoists Gp	067	Bobsled Gp
024	Power Control Unit Gp	068	Dolly Gp
025	Power Take Off Gp	069	Generator Lox & Nitrogen Gp
026	Miscellaneous Body Gp	070	Steam Cleaning Gp
027	Elevator Gp	071 072	Spraying Equipment Gp
028	Electric Motors Gp		Saw Gp
029	Electric Generators Gp	073 074	Distillation Equipment Gp
030	Electrical Equipment Gp	074	Heater Gp (Gas or Fuel) Blower Gp
031	Hydraulic Systems Gp	075	Boiler Gp
032	Air and Vacuum Systems Gp	070	Pile Driver Gp
033 034	Gage and Measuring Devices Gp	077	Water Purification Gp
034	Pneumatic Equipment Gp	078	Reel Gp
035	Pump Gp Burner Gp	080	Scraper Gp
030	Mach Tools/Related Equip Gp	081	Ripper Gp
037	Snow Removal Equipment Gp	082	Outboard Drive Gp
038	Mowing/Sweeping Equipment Gp	083	Rotary Tiller Soil Stabilizer Gp
040	Servicing Equipment Gp	085	Drill Equipment (Pneu) Gp
041	Concrete/Asphalt Equipment Gp	086	Dehydrator Gp
042	Crane/and/or Shovel Gp	080	Remote Control Gp
U T 2	Cranc/and/or bhover op	001	CMB10014

Figure 1-14.—Component identification group numbers (CIDs).

PART III consists of a Stock Number Sequence List (SNSL) and two repair parts cross lists. The SNSL lists the repair parts, arranged in National Item Identification Number (NIIN) sequence, that were provided in the COSAL to support the assigned level of support The SNSL also lists all the APL numbers each part is stocked for, the unit price, and the total COSAL quantity. The first list crosses a manufacturer's part number to a National Stock Number (NSN). The second list crosses an NSN, in NIIN sequence, to a part number. Part III is NOT a master cross reference; if the number you are researching is not included in the COSAL, it is not in these lists.

Technical Manuals

One key to effective equipment maintenance is the availability of authoritative technical data and guides for each unique item of equipment. Within the NCF, this information is supplied through the appropriate operator manuals, lubrication charts, parts manuals, and shop repair manuals. There are two types of technical manuals: manufacturer's manuals and specialized technical mantis. It is important for you to understand the difference.

- Manufacturer's manuals are published by the various equipment manufacturers (Ford, General Motors, and so on). Also called factory manuals, each book covers equipment produced by that company, usually for a l-year period.
- Specialized technical manuals cover only specific repair areas. They usually come in several volumes, each covering one specific section (Engine, Transmission, Hydraulics, and so forth).

A technical manual is divided into sections, such as general information, engine, transmission, and electrical. The **general information section** of a technical manual helps you with the vehicle identification, basic maintenance, lubrication, and other general subjects. The vehicle identification (ID) number contains a code that is used when ordering parts. The ID number identifies the type of engine, the type of transmission, and other useful information The repair sections of a technical manual cover the major systems of a vehicle. These sections explain how to

diagnose problems, inspect, test, and repair each system. To use a technical manual, follow these basic steps:

- Locate the right technical manual. Some manuals come in sets or volumes that cover different repair areas.
- Turn to the table of contents or index. This will help you locate the information. **NEVER** thumb through a manual looking for a subject.
- Use the page listings given at the beginning of each repair section. Most manuals have a small table of contents at the beginning of each section
- Read the procedures carefully. A technical manual provides detailed instructions. DO NOT overlook any step or the repair may fail.
- Study the manual illustrations closely; they contain essential information. They cover special tools, procedures, torque specifications, and other data essential to the repair.

The technical manuals (TMs) are included in the parts peculiar COSAL of each unit. The quantity of TMs is determined in the same way as repair parts. In general, this results in the following number of TMs being provided to the unit: one copy for each piece of equipment of the same make and model; two copies for two to four pieces of the same make and model; three copies for five to eight pieces of the same make and model; and four copies for more than eight pieces of the same make and model.

Regardless of the type of manual, all NCF units are responsible for maintaining, in good condition and in the proper quantities, all TMs listed in the COSAL. It is important for units to maintain inventory control of TMs through the use of periodic inventories, check-out procedures, and so on, because replacement mantis are difficult to obtain. Manuals in excess of COSAL quantities must be returned to M3 stock at CBC, Port Hueneme, California. TMs that are lost, damaged, worn out, or otherwise unserviceable, may be replaced by submitting funded requisitions to the appropriate CBC.

REQUESTING SPARE PARTS

NAVSUP Forms 1250-1 and 1250-2 are shown in figures 1-15 and 1-16. These forms are used as authorization for drawing parts and requesting requisition of items Not In Stock (NIS) or Not Carried (NC) by supply. It is not a purchase document and does not leave the command. The form must be filled out with either a ball-point pen or typed. Confusion between the number zero and the letter O can be avoided by using the communication symbol(\emptyset) for zero. NAVSUP Form 1250 must be signed by the maintenance supervisor or a designated representative when requesting spare parts. It is your responsibility to ensure that the right part is ordered. So, provide the correct information on NAVSUP Form 1250. Instructions on how to fill out this form are located in NAVFAV P-300 and COMSECONDNCB/ COMTHRIDNCBINST 11200.1.

After signature, the form is submitted to the repair parts storeroom. The person receiving the part signs NAVSUP Form 1250-1. The national stock number (NSN), quantity, and price are then documented on the ERO work sheet.

The request for NIS/NC repair parts should be attached to the ERO and returned to the cost control office for review by the maintenance supervisor. The maintenance supervisor then assigns an Urgency-of-Need Designator. The ERO is then passed to the cost control clerk for verification and/or closing. The 1120-1/-2 is then sent to the DTO clerk who records the

information in the DTO log and DTO summary sheet. The yellow copy of the ERO is pulled and filed with the DTO summary sheet. Request for repair parts with an Urgency-of-Need-Designator of "A" (NORS) requires the approval signature of the commaning officer who may delegate authority to the company commander (A-6); an Urgency-of Need-Designator of "B" (ANORS) requires the approval signature maintenance supervisor.

USING PART NUMBERS

To identify the part you need, you must use part numbers. There are two types of part numbers: manufacturer's part numbers and national stock numbers.

Manufacturer's Part Numbers

Manufacturer's part numbers are those used by the manufacturer of a piece of equipment to identify each part on that piece of equipment. These part numbers are usually a combination of letters and numbers or all numbers.

National Stock Numbers

Effective September 1974, the United States agreed to replace its federal numbering system with a new 13 digit system that conforms to the NATO stock numbering format. This system is known as the NATIONAL STOCK NUMBER (NSN) system. The 13 digit NSN is broken down into four major groups. The first 4 digits on the NSN is the Federal Supply

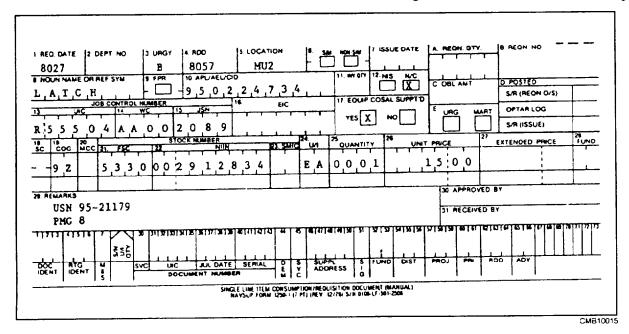


Figure 1-15.—Single Line Item Consumption/Requisition Document, NAVSUP Form 1250-1.

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Figure 1-16.—Non-NSN Requisition, NAVSUP Form 1250-2.

Classification (FSC) that groups similar items into classes. The last 9 digits of the NSN is the National Item Identification Number (NIIN). The first 2 digits of the NIIN identifies the NATO country that cataloged the item, and the last 7 digits identifies the item.

As pointed out above, NSN numbers provide you with the federal class of the item (first 4 digits), what country cataloged the item (digits 5 and 6). and the item identification number (last 7 digits).

Part III of the COSAL is the section used to cross-reference manufacturer's part numbers to NSNs.

REPAIR PARTS CONTROL

Each maintenance department is required to maintain control over repair parts. One of the biggest problems in some maintenance programs is the control of direct turnover (DTO) repair parts. DTO parts are those ordered for direct turnover to the user.

For DTO parts to be complete and accurate, all NAVSUP Form 1250s for NIS and NC repair parts must pass through the cost control clerk and the DTO clerk before being submitted to the supply office. The supply office maintains current procurement and shipping status for items on order. When requesting the status of a requisition from supply, DTO clerks must be able to identify, by requisition number, the procurement document they are interested in. Accurate DTO parts records accomplish this and allow the cost control clerk to identify the USN-number of the equipment each part was ordered for. The DTO repair parts status keeping system provides excellent accountability with minimum effort. This system consists of two separate records designed to be used together: the DTO log and the repair parts summary sheets.

DTO Log

The DTO log (fig. 1-17) is a sequential record and proof of order for all NAVSUP Form 1250-1/-2 requests for NIS/NC/Non-NSN requirements submitted to the repair parts storeroom. It is maintained in such a way that the last NAVSUP Form 1250 entered is the last parts request submitted to the supply office. This tells the DTO clerk when the requisition was submitted to supply. Normally, supply should order priority "A" (NORS) requisitions within 24 hours and priority "B" and "C" requisitions within 7 days. After accomplishing all ordering actions and issuing a procurement document, supply enters the requisition number in block "B" of a NAVSUP Form 1250-1 or block "I" of a NAVSUP Form 1250-2. The pink copy is

returned to the repair parts storeroom where outstanding requisition data is posted to stock record cards for NIS items. The yellow copy is returned to the cost control office to log the requisition number in the DTO log. The yellow copy of NAVSUP Form 1250 is retained as proof of order and maintained with the repair parts summary sheet in the DTO files. The DTO log provides a cross-index between the requisition number, the department order number, and the USN number. This cross-reference allows the DTO clerk to determine the appropriate USN number for which the part was ordered. This is invaluable for follow-up actions in the event of lost or misfiled requisitions, lost or missing shipping documents, partial or duplicate parts shipments, and so forth. The columns required to maintain an effective DTO log are listed and explained below.

- DATE—The date NAVSUP Form 1250 was submitted to supply. It is indicated by the Julian date: For example, December 12, 1996, is written 6347.
- DEPARTMENT ORDER NUMBER—Internal control number assigned to each NAVSUP Form 1250 submitted to supply, numbered in sequence starting with 0001.
- PM GROUP—The PM group that the appropriate USN-number equipment is assigned.
- USN NUMBER—Identifies the vehicle for which the part was ordered.
- NSN/PART NUMBER—The NSN or part number of the ordered item.
- ITEM—Nomenclature or noun name of the item ordered.
- UNIT PRICE—The price of a single item.
- QUANTITY—Total number of items ordered.
- PRIORITY—Urgency-of-need Designator (A, B, or C).
- NC/NIS—Provides ready information on whether an item is Not Carried or Not In Stock.
- REQUISITION NUMBER—Entered when the yellow copy is returned from supply. All supply office documents are tiled by this number.

CBPAC (31)-4409/2 REV (9-82) DIRECT TURNOVER LOG (DTO) ISSUED & DEPT. FOLLOW-UP USN NUMBER DATE NSN-P/N ITEM REQ. NO.

Figure 1-17.—DTO Log.

- FOLLOW-UP STATUS—Status furnished by supply. Intervals for follow-ups should not exceed 7 days for NORS/ANORS, 14 days for priority "B," and 30 days for priority "C" requisitions.
- RECEIVED DATE—Date indicating when the document ordering the items was processed.
- ISSUED DATE—Date item was issued to the shop for installation.

Repair Parts Summary Sheet

The repair parts summary sheet (fig. 1- 18) shows all parts on order for each vehicle. One sheet is maintained for each USN number; the summary sheets are filed in PM group order. This is for the convenience of the DTO clerk, because the DTO parts bins and the PM EROs are arranged in the same order. All EROs pass through the DTO clerk to preclude the accidental reordering of items. This also allows the DTO clerk to attach a DTO Information Sheet (fig. 1-19) to the ERO that parts have been received and are in the DTO bin. Summary sheets provide ready reference for determining the quantity of parts received from a multiple order; for example, parts for an engine overhaul, deadline equipment, and so forth. When

equipment is transferred or disposed of, the summary sheet is used to identify outstanding requisitions, so they may be canceled. The heading on each summary sheet must show the EC and the USN number. The columns required on a repair parts summary sheet are listed and explained below.

- DATE—Julian date the NAVSUP Form 1250 was submitted to supply.
- DEPARTMENT NUMBER—This number serves as a cross reference between the DTO log and the summary sheets.
- UND—Urgency-of-Need Designation (Priority A, B, or C).
- REQUISITION NUMBER—Entered when the yellow copy of NAVSUP Form 1250 is returned from supply with the requisition number entered.
- NOMENCLATURE—Description of the item ordered.
- FOLLOW-UP—Dates that the DTO clerk requested the status from supply.
- RECEIVED-Date indicating when the document ordering the items was processed.

REPAIR PARTS SUMMARY SHEET						
					PM Group 23 Code <u>485001</u> USN <u>48-0012</u>	23
Date	Dept. No	UND	Req No.	Nomenclature	Follow-up	Rec'd
8018	A009	В	8021-2211	Gasket Set	1/31	2/28
8229	A161	В	8230-2713	Injector	8/28 9/15 10/2	10/11
8246	A218	В		Raincap		

CMB10018

Figure 1-18.—Repair Parts Summary Sheet

DTO INFORMATION SHEET

1G USN
PARTS ON ORDER/DESCRIPTION
1
2
3
4
5
6
7
8
A DEFENDED EDOM DREWIOUG EDO
X DEFERRED FROM PREVIOUS ERO

Figure 1-19.—DTO Information Sheet.

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Once a part is received, supply forwards a copy of DD Form 1348-1 (fig. 1-20) with the part to the DTO clerk. Because this form does not contain the USN number, the DTO clerk must match the requisition number with the DTO log to determine the USN number for which the part was ordered. It must then be determined whether the part is still required. Ouestionable items should be discussed with the maintenance supervisor. Parts that are no longer required should not be stored in the DTO bins; they should be returned to supply for return to stock, return to CBC L3 stock, or disposal according to supply regulations. The DTO clerk tags each required part with the correct USN number, PM group, and the yellow copy of NAVSUP Form 1250. The DTO clerk ensures the DTO log and the summary sheet are dated, showing the item received. The part is stored in the DTO bin awaiting installation. The summary sheet can then be used as a record showing what parts are stored in the DTO bins.

When a part is issued, the DTO log is initialed by the receiving individual and a line is drawn through the received date with a yellow marker showing the part is no longer in the bin. If the received part is for a deadline piece of equipment, the maintenance supervisor is notified and determines whether enough parts are on hand to restart work on the vehicle.

Each time an ERO is issued, the DTO clerk checks the repair parts summary sheets to determine whether parts are stored in the DTO bin for the USN number concerned. If so, the DTO information sheet is attached to the ERO to alert the shop supervisor and the inspectors. The shop supervisors ensure that the parts are either used or returned to supply. The DTO bin that was worked through the shop yesterday should be empty today, as all parts should have been used or returned to supply. The only exception is when all required parts have not been received.

- Q6. What level of repair parts support does an NMCB main body receive?
- Q7. What NAVSUP form is used for requistioning NON-NSN repair parts?
- Q8. Upon receipt of a NAVSUP Form 1250, supply should order priority "A" requisitions within how many hours?
- Q9. Repair parts summary sheets are filed in what manner?
- Q10. What person determines whether enough DTO parts are on hand to restart work on a deadline vehicle?

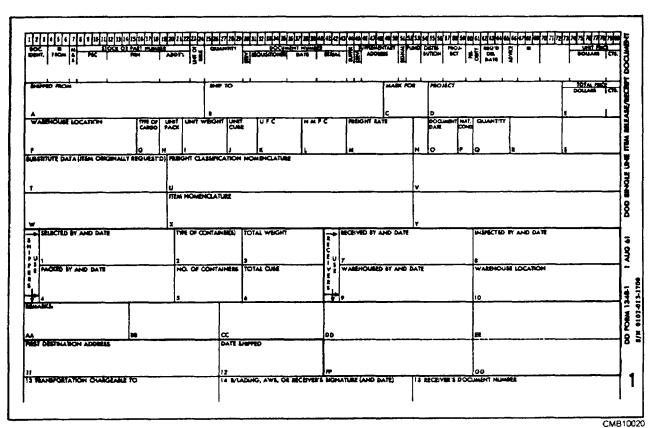


Figure 1-20.—DD Form 1348-1.